

**1998 Upper Wabash River Basin
Sampling Sites
and
Stream Standard Violations**

Report for the 305(b) Coordinator

**Indiana Department of Environmental Management
Surveys Section
Assessment Branch
Office of Water Management
February 2000
IDEM 032/02/022/2000**

1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations

Report for the 305(b) Coordinator

Authors

Larry McFall, Senior Environmental Manager

Sherry Martin, Environmental Scientist

Carl Christensen, Environmental Manager

Geographical Information Systems

Jim Butler, Environmental Scientist

Compilation and development of the final report was the primary responsibility of the Surveys Section

Arthur C. Garceau, Surveys Section Chief

Indiana Department of Environmental Management

Office of Water Management

Assessment Branch

Surveys Section

February 2000

IDEM 032/02/022/2000

Page Intentionally Left Blank

ABSTRACT

The Surveys Section, Assessment Branch, Office of Water Management operated multiple sampling programs during 1998 in the Upper Wabash River Basin. These included the Watershed Monitoring, Fixed Station, *E. coli* and Total Maximum Daily Load (TMDL) programs. The Watershed Monitoring Program sampled in a probabilistic fashion to have a statistically valid representation of the entire Upper Wabash River Basin, while the other programs sampled at pre-determined sites.

The information from these programs is used to create Indiana's update to the federally mandated 305(b) report. The data from all of these studies were compiled into tables which list the sites, their locations, the stream names, stream standard violations (if any), and other notations regarding the site or violation.

The 1998 watershed monitoring probabilistic program did not observe any stream standard violations that pertain to aquatic life use, although other programs did observe this type of stream standard violations. This may have been due to the lack of sampling frequency for this program and the flow conditions when the samples were taken.

Notice and Disclaimer:

Use of this document is intended for the facilitation of information exchange by the Indiana Department of Environmental Management. Mention of trade names or commercial products does not constitute endorsement or recommendation of use.

When citing this document:

McFall L, Martin S, and Christensen C. 2000. *1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations*. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/2000

TABLE OF CONTENTS

INTRODUCTION	1
PURPOSE.....	1
METHODS	1
PROBABILISTIC RESULTS	3
SUMMARY	4
REFERENCES	4

LIST OF TABLES

TABLE 1 HUC 05120101 UPPER WABASH RIVER SAMPLING SITES.....	5
TABLE 2 HUC 05120102 SALAMONIE RIVER SAMPLING SITES	8
TABLE 3 HUC 05120103 MISSISSINewa RIVER SAMPLING SITES	10
TABLE 4 HUC 05120104 EEL RIVER SAMPLING SITES	12
TABLE 5 HUC 05120105 MIDDLE WABASH RIVER/DEER CREEK SAMPLING SITES.....	13
TABLE 6 HUC 05120106 TIPPECANOE RIVER SAMPLING SITES.....	14
TABLE 7 HUC 05120107 WILDCAT CREEK SAMPLING SITES	16

LIST OF FIGURES

APPENDIX I

MAP 1 HUC 05120101 UPPER WABASH RIVER WATERSHED
MAP 2 HUC 05120102 SALAMONIE RIVER WATERSHED
MAP 3 HUC 05120103 MISSISSINewa RIVER WATERSHED
MAP 4 HUC 05120104 EEL RIVER WATERSHED
MAP 5 HUC 05120105 MIDDLE WABASH/DEER CREEK WATERSHED
MAP 6 HUC 05120106 TIPPECANOE RIVER WATERSHED
MAP 7 HUC 05120107010 WILDCAT CREEK WATERSHED (UPPER PORTION)
MAP 8 HUC 05120107020 WILDCAT CREEK WATERSHED (MIDDLE MAIN STEM PORTION)
MAP 9 HUC 05120107030 MIDDLE FORK WILDCAT CREEK
MAP 10 HUC 05120107040 SOUTH FORK WILDCAT CREEK
MAP 11 HUC 05120107050 WILDCAT CREEK (LOWER MAIN STEM)

Page Intentionally Left Blank

INTRODUCTION

In 1998, the Surveys Section of the Assessment Branch, Office of Water Management(OWM), operated multiple surface water quality monitoring programs within the Upper Wabash River Basin. These programs, operating in concordance with the Assessment Branch Surface Water Quality Monitoring Strategy (IDEM 1996) included the Watershed Monitoring Program, the Fixed Station Monitoring Program, the *E. coli* Monitoring Program contracted to the United States Geological Survey (USGS), and an intensive Total Maximum Daily Load (TMDL) study of the Wildcat Creek watershed. These programs were designed to collect chemical surface water quality data from both targeted and probabilistically selected sites which will be used for making comprehensive assessments of the surface water quality in the Upper Wabash River Basin.

The probabilistically selected sites were chosen in a random fashion so that statistically valid statements can be made concerning the surface water quality in the Upper Wabash River Basin as a whole. Additionally, data from all of the sampling programs have been analyzed against the criteria set forth in 327 I.A.C. 2-1-6 (IDEM 1998) in order to determine stream standard violations. These violation determinations or lack thereof are intended to be used as the Surveys Section contribution in formulating waterbody assessments for the Indiana update of the 305(b) report as required by 33 U.S.C.A. ' 1315(b). The 305(b) report update is submitted as an electronic update yearly and a narrative report biennially to the Environmental Protection Agency (EPA).

PURPOSE

This document was created for a two-fold purpose. The EPA *Guidelines for the Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports)* (USEPA 1997) has recommended a probabilistic approach to make basin-wide assessments. This document fulfills that recommendation by making a statistically valid statement of the condition of the water quality in the Upper Wabash River Basin. Further, data generated by all of the Surveys Sections sampling programs has been condensed down to a listing of sampling sites and stream standard violations for the purpose of making waterbody assessments. This report is designed as a streamlined tool for the OWM 305(b) coordinator to blend with biological information and other sources of data in the final 305(b) assessment process.

METHODS

The concept behind a statistical sampling method is to randomly sample sites to gain an overall

idea of the general surface water quality in the study area. Proportions are used to determine the number of impaired miles in the basin. For example, if a basin had 1,000 miles of streams and out of 100 sites, four were impaired, the evaluation would be that 40 miles of streams in the basin are impaired. Sampling design also allows for stratifying the streams into various stream orders, allowing a program to focus on certain types of streams. This method of sampling allows the scientist to determine the general quality of the water, but does not pinpoint where all of the impairments are located.

Additionally, data from all Surveys Section sampling programs within the Upper Wabash River Basin were examined for stream standard violations. Due to the ongoing monthly sampling of the fixed station program, the past three years of data inclusive of 1996, 1997, and 1998 were used to increase the strength of the assessment for these sampling sites. All sampling sites along with the corresponding stream standard violations were then placed into tables according to fourteen-digit hydrologic units.

A table is provided for each sub-basin in the Upper Wabash River Basin.

These include:

- Table 1 The Upper Wabash (05120101)
- Table 2 The Salamonie (05120102)
- Table 3 The Mississinewa (05120103)
- Table 4 The Eel (05120104)
- Table 5 The Middle Wabash/Deer Creek (05120105)
- Table 6 The Tippecanoe (05120106)
- Table 7 The Wildcat (05120107)

Where sources of violations were known, the appropriate notation was indicated in the comments column of each table and notes are provided at the end of each table.

Maps of each eight-digit sub-basin were generated using *Reach File Version 3.0-Alpha* (RF3) and *ArcView7 3.1* software. These maps are intended to function in conjunction with each of the tables as a visual locational tool for the 305(b) assessment process. Each sampling location has an indicator for the type of sampling program and if stream standard violations occurred.

Total miles for each sub-basin as derived from the RF3 File are as follows:

<u>Watershed Name</u>	<u>Stream Miles in Watershed</u>
Upper Wabash	967.89
Salamonie	364.80
Mississinewa	496.28
Eel	746.71
Tippecanoe	2,220.08
Middle Wabash	662.72
Wildcat	670.67
Total	6,089.15

The approach of this report in only listing stream standard violations is a departure from the past where actual waterbody assessments were made. In the past few years the Surveys Section made waterbody assessments based on stream standard violations identified from chemical data from all the sampling programs. This resulted in duplication or conflicting assessments later in the process when biological and other sources of data were evaluated. The complexity of making assessments also meant using best professional judgement (BPJ) which also caused conflicting assessments. Rather than making assessments at this juncture of the process, this document merely lists the chemical stream standard violations which will blend with other types of data later in the process to produce a singular, harmonious, and final assessment.

PROBABILISTIC RESULTS

The Watershed Monitoring Program sampled 64 water chemistry sites in 1998 once between July 1 and October 15, 1998. Although there were some water quality violations, mostly nitrate and total dissolved solids, there were no stream standard violations for aquatic life use. Two of the sites had dissolved oxygen measurements, which were less than 5.0 mg/L, but they were not less than 4.0 mg/L, the lower limit for a single grab sample. The initial conclusion from these results is that there are no stream segments with impaired water chemistry for aquatic life use in the Upper Wabash River Basin. This was not the case when evaluating the data from other program areas, especially the Fixed Station program, which monitors each site every month. This leaves the question of what aspects of the 1998 program were inadequate to assess the waters of the Upper Wabash River Basin.

The water samples taken in 1998 were only taken during the summer and early fall months during periods when the water was relatively low. This condition reduces the amount of runoff, which can contribute to the amount of pollutants found in streams. Future studies with this type of sampling will include multiple visits at each site throughout the field season. This accounts for seasonal variation and the effects of weather to be observed in the water chemistry.

SUMMARY

This report has been generated to serve a two-fold purpose. A statistically valid statement of the water quality of the Upper Wabash River Basin in 1998 has been developed based on sampling at randomly selected sites. The 1998 Watershed Monitoring Program did not identify impairments for aquatic life use. This was probably due to sampling bias in stream conditions and seasons and lack of sampling frequency. These results do not conclude that there are no areas with surface water quality problems, only that there are too few specific problem areas to show up in this type of sampling procedure.

Further, data from all Surveys Section programs in the Upper Wabash River Basin in 1998 were compiled into a table of site locations and stream standard locations. This streamlined listing is intended to integrate into the 305(b) process for making waterbody assessments at the fourteen-digit, sub-watershed level. This method eliminates duplication of effort and conflicting waterbody assessments once the chemical data is evaluated in combination with biological and other data.

REFERENCES

Indiana Department of Environmental Management(IDEM), Office of Water Management, Assessment Branch. 1996. *Surface Water Quality Monitoring Strategy 1996 - 2000*. Revised May 1998. Indiana Department of Environmental Management, Office of Water, Assessment Branch. 20 p, 3 ap. IDEM 32/01/013/1996.

Indiana Department of Environmental Management(IDEM). 1998. *Indiana Environmental Rules: Water*. Indiana Department of Environmental Management, Office of Water, 100 N. Senate Ave, Indianapolis, IN, 46206-6015.

United States Environmental Protection Agency(USEPA). 1997. *Guidelines for Preparation of the Comprehensive State Water Quality Assessments (305(b) Reports) and Electronic Updates: Report Contents*. September 1997. Assessment and Watershed Protection Division(4503F), Office of Wetlands, Oceans, and Watersheds, Office of Water, United States Environmental Protection Agency, 401 M Street, SW, Washington, DC, 20460.

Table 1 HUC 05120101 Upper Wabash River Sampling Sites

5120101	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
040010	36-01	E	Wabash River at State Line Rd	<i>E. coli</i> GM	3098	100mL	6/2-6/30/98	
050060	169-073	P	Limberlost Creek near CR165E	TDS	820	mg/L	09/29/98	Applies to industrial intake
	169-061	P	Limberlost Creek near CR185E	None				
060010	169-081	P	James Stutz Ditch near US27	None				
060020	WB-452	F	Wabash River at US27	TDS	816	mg/L	10/19/98	Applies to industrial intake
				TDS	840	mg/L	09/29/98	Applies to industrial intake
				Beryllium	3.7	ug/L	09/29/98	
				Cadmium	2.4	ug/L	07/22/98	
				Copper	15	ug/L	01/23/97	
				Copper	12	ug/L	07/22/98	
				Cyanide	0.008	mg/L	02/22/96	
				Cyanide	0.006	mg/L	05/01/96	
				Cyanide	0.008	mg/L	08/26/96	
				Cyanide	0.006	mg/L	10/15/96	
				Cyanide	0.008	mg/L	11/06/96	
				Cyanide	0.007	mg/L	09/16/97	
				Cyanide	0.006	mg/L	12/22/97	
				Cyanide	0.032	mg/L	06/17/98	
				Lead	17	ug/L	09/14/98	
				Nitrate	11	mg/L	05/01/96	Applies to point of water intake
				Nitrate	11	mg/L	12/02/96	Applies to point of water intake
				Nitrate	14	mg/L	06/17/98	Applies to point of water intake
060040	36-02	E	Wabash River at Linn Grove	<i>E. coli</i> GM	1711	100mL	6/2-6/30/98	Low D.O. noted 6/30/98 (4.0 mg/L)
070040	36-03	E	Wabash River at CR300N	<i>E. coli</i> GM	705	100mL	6/2-6/30/98	
070060	WB-420	F	Wabash River at SR3	Cyanide	0.088	mg/L	06/16/98	
				Lead	17	ug/L	08/26/98	
				Lead	14	ug/L	09/14/98	
				Nitrate	11	mg/L	05/01/96	Applies to point of water intake
				Nitrate	11	mg/L	07/23/96	Applies to point of water intake
				Nitrate	18	mg/L	06/16/98	Applies to point of water intake
080060	169-054	P	Rock Creek near CR400W	None				

Table 1 cont.

5120101	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
090020	WB-409	F	Wabash River at Old SR9	Cyanide	0.013	mg/L	05/21/98	
				Cyanide	0.076	mg/L	06/16/98	
				Cyanide	0.007	mg/L	08/27/98	
				Cyanide	0.006	mg/L	09/24/98	
				Lead	15	ug/L	02/25/98	
				Lead	9.9	ug/L	08/27/98	
				Lead	9.2	ug/L	09/24/98	
				Nitrate	18	mg/L	06/16/98	Applies to point of water intake
100060	169-023	P	Aboite Creek near W Hamilton Rd	None				
	169-033	P	Aboite Creek near Powell Rd	None				
110030	169-003	P	Eightmile Creek near CR950N	None				
110050	169-013	P	Witzgall Ditch near Feighner Rd	Nitrate	13	mg/L	07/08/98	Applies to industrial intake
120100	LR-7	F	Little River at CR200E	None				
	35-01	E	Little River at Mardenis	<i>E. coli</i> GM	844	100mL	6/3-7/1/98	
	169-022	P	Mud Creek near CR300E	None				
140010	WB-402	F	Wabash River at SR105	Cadmium	1.5	ug/L	07/23/98	
				Copper	100	ug/L	11/12/97	
				Copper	11	ug/L	07/23/98	
				Cyanide	0.006	mg/L	01/30/96	
				Cyanide	0.008	mg/L	05/01/96	
				Cyanide	0.007	mg/L	06/27/96	
				Cyanide	0.008	mg/L	05/21/97	
				Cyanide	0.013	mg/L	06/26/97	
				Cyanide	0.006	mg/L	05/21/98	
				Cyanide	0.076	mg/L	06/16/98	
				Cyanide	0.008	mg/L	08/27/98	
				Lead	12	ug/L	02/25/98	
				Lead	11	ug/L	08/27/98	
				Mercury	0.2	ug/L	04/21/98	
				Mercury	0.2	ug/L	08/27/98	
				Nitrate	11	mg/L	05/01/96	Applies to point of water intake
				Nitrate	15	mg/L	06/16/98	Applies to point of water intake
140010	33-01	E	Wabash River at SR105	<i>E. coli</i> GM	324	100mL	6/3-7/1/98	
140020	169-002	P	Loon Creek near Andrews	Nitrate	11	mg/L	07/08/98	Applies to point of water intake
150050	33-02	E	Wabash River at Wabash St	<i>E. coli</i> GM	152	100mL	6/3-7/1/98	

Table 1 cont.

5120101	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
160010	33-03	E	Wabash River at SR19	<i>E. coli</i> GM	396	100mL	6/4-7/2/98	
	WB-370	F	Wabash River at Business 31	Copper	15	ug/L	03/06/97	
				Lead	6.6	ug/L	07/22/98	
				Lead	11	ug/L	08/18/98	
				Lead	9.6	ug/L	09/08/98	
170030	169-016	P	Pipe Creek near CR900W	None				
170110	32-02	E	Pipe Creek at CR125W	<i>E. coli</i> GM	610	100mL	6/4-7/2/98	
	169-039	P	Pipe Creek near CR400S	None				
	PIP-5	F	Pipe Creek at CR925E	Copper	11	ug/L	07/22/98	
				Lead	18	ug/L	08/18/98	
				Lead	12	ug/L	09/08/98	
				Nitrate	11	mg/L	05/11/98	Applies to point of water intake

1 E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

2 Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 2 HUC 05120102 Salamonie River Sampling Sites

5120102	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010030	169-093	P	Salamonie River near CR131E	TDS	760	mg/L	09/28/98	Applies to industrial intake
010040	169-031	P	Buckeye Creek near CR164S	None				
010060	S-71	F	Salamonie River at CR106S	Copper	22	ug/L	07/22/98	
				Cyanide	0.006	ug/L	06/03/96	
				Cyanide	0.006	mg/L	06/24/96	
				Cyanide	0.01	mg/L	07/22/96	
				Cyanide	0.011	mg/L	05/19/97	
				Cyanide	0.007	mg/L	06/23/97	
				Cyanide	0.019	mg/L	11/13/97	
				Cyanide	0.009	mg/L	12/22/97	
				Cyanide	0.011	mg/L	05/20/98	
				Cyanide	0.007	mg/L	08/20/98	
				Sulfate	255	mg/L	09/15/98	
				TDS	769	mg/L	01/27/98	Applies to industrial intake
				TDS	1003	mg/L	09/15/98	Applies to industrial intake
				TDS	1060	mg/L	10/20/98	Applies to industrial intake
				TDS	911	mg/L	11/09/98	Applies to industrial intake
	37-01	E	Salamonie River at CR75S	<i>E. coli</i> GM	4843	100mL	6/1-6/29/98	
010070	169-063	P	Sipe Ditch near CR109E	None				
020040	37-02	E	Salamonie River at SR18	<i>E. coli</i> GM	2955	100mL	6/1-6/30/98	
	S-52	F	Salamonie River at SR18	Mercury	0.2	ug/L	05/19/98	
				Mercury	0.2	ug/L	08/19/98	
030010	169-064	P	Salamonie River near Odd Fellows Cemetery	None				
040020	S-25	F	Salamonie River at SR124	Copper	9.7	ug/L	07/23/98	
				Cyanide	0.007	mg/L	06/17/98	
				Lead	7.8	ug/L	08/12/97	
				Lead	14	ug/L	02/25/98	
	38-01	E	Salamonie River at SR124	<i>E. coli</i> GM	1597	100mL	6/2-6/30/98	

Table 2 cont.

5120102	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
040040	169-012	P	Majenica Creek near CR200W	Nitrate	12	mg/L	07/09/98	Applies to point of water intake
040080	S-0	F	Salamonie River at Division Rd	Lead	15	ug/L	02/25/98	
				Mercury	0.2	ug/L	04/20/98	
	169-091	P	Salamonie River near CR600E	None				

1 E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

2 Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 3 HUC 05120103 Mississinewa River Sampling Sites

5120103	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010030	169-051	P	Mississinewa River near CR900N	None				
020010	MS-99	F	Mississinewa River at CR100W	Cadmium	1	ug/L	07/22/98	
				Copper	8.8	ug/L	07/22/98	
				Cyanide	0.006	mg/L	05/30/96	
				Cyanide	0.007	mg/L	05/19/97	
				Cyanide	0.006	mg/L	05/20/98	
				Lead	18	ug/L	09/15/98	
				Nitrate	11	mg/L	07/22/96	Applies to point of water intake
				Nitrate	11	mg/L	06/23/97	Applies to point of water intake
				Nitrate	12	mg/L	06/17/98	Applies to point of water intake
				Zinc	77	ug/L	07/22/98	
030040	MS-68	F	Mississinewa River at Center Rd	Mercury	0.2	ug/L	08/19/98	
	39-02	E	Mississinewa River at Center Rd	<i>E. coli</i> GM	1044	100mL	6/1-6/29/98	
050010	169-034	P	Mississinewa River near CR450W	None				
	24-01	E	Mississinewa River at CR950W	<i>E. coli</i> GM	796	100mL	6/1-6/29/98	
050060	169-036	P	Little Creek near CR1100S	None				
050070	169-014	P	Mississinewa River near First St	None				
050090	169-044	P	Walnut Creek near CR400S	None				
060010	169-024	P	Hummel Creek near Babcock Rd	None				
	MS-36	F	Mississinewa River at Highland Ave	Cyanide	0.007	mg/L	06/18/98	
				Lead	15	ug/L	11/25/96	
				Lead	11	ug/L	01/22/97	
				Mercury	0.2	ug/L	04/20/98	
	24-02	E	Mississinewa River at Highland Ave	<i>E. coli</i> GM	842	100mL	6/2-6/29/98	
060020	MS-28	F	Mississinewa River at CR500N	Lead	12	ug/L	02/24/98	
				Lead	16	ug/L	08/27/98	
	24-03	E	Mississinewa River at CR500N	<i>E. coli</i> GM	1741	100mL	6/2-6/30/98	

Table 3 cont.

5120103	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
060100	169-029	P	Mississinewa River near Francis Slocum Tr	None				
	MS-1	F	Mississinewa River at SR124	Cadmium	2.7	ug/L	05/11/98	
				Cyanide	0.006	mg/L	09/08/98	
				Lead	11	ug/L	08/18/98	

1 E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

2 Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 4 HUC 05120104 Eel River Sampling Sites

5120104	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010040	34-01	E	Eel River upstream of Blue River confluence	<i>E. coli</i> GM	919	100mL	6/3-7/1/98	
020020	169-040	P	Mud Run near CR450E	None				
020040	169-043	P	Blue River near Columbia City	None				
030030	169-070	P	Spring Creek near Scheckler Rd	None				
	169-060	P	Schuman Ditch near Pennsylvania RR	None				
040010	ELL-66	F	Eel River at South Whitley	Mercury	0.2	ug/L	04/20/98	
				Mercury	0.2	ug/L	09/24/98	
040050	169-082	P	Eel River near SR113	None				
	34-02	E	Eel River at SR114	<i>E. coli</i> GM	1383	100mL	6/3-7/1/98	
050030	ELL-41	F	Eel River at SR15	Cyanide	0.01	mg/L	01/30/96	
				Cyanide	0.006	mg/L	06/03/96	
				Cyanide	0.007	mg/L	05/21/97	
				Cyanide	0.006	mg/L	06/26/97	
				Cyanide	0.022	mg/L	06/15/98	
				Lead	8.3	ug/L	08/12/97	
				Lead	12	ug/L	02/25/98	
				Lead	14	ug/L	08/27/98	
				Mercury	0.2	ug/L	09/24/98	
050070	31-03	E	Eel River at SR16	<i>E. coli</i> GM	771	100mL	6/3-7/1/98	
060020	31-01	E	Eel River at Miami Baseline Rd	<i>E. coli</i> GM	486	100mL	6/4-7/2/98	
070050	ELL-7	F	Eel River at CR125N	Lead	6.6	ug/L	07/29/97	
				Lead	16	ug/L	08/18/98	
				Mercury	0.2	ug/L	08/18/98	
	31-02	E	Eel River at CR125N	<i>E. coli</i> GM	841	100mL	6/4-7/2/98	
070060	169-008	P	Tributary to Tick Creek near CR300E	None				

¹ E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

² Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 5 HUC 05120105 Middle Wabash River/Deer Creek Sampling Sites

5120105	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010010	WB-347	F	Wabash River at CR675W	Copper	27	ug/L	07/22/98	
				Lead	12	ug/L	07/22/98	
				Lead	14	ug/L	08/17/98	
				Lead	11	ug/L	09/08/98	
				Mercury	0.2	ug/L	04/14/98	
				Mercury	0.2	ug/L	08/17/98	
				Zinc	390	ug/L	05/11/98	
	40-01	E	Wabash River at CR675W	<i>E. coli</i> GM	789	100mL	8/4-9/1/98	
020010	169-018	P	Keeps Creek near CR600W	None				
020060	169-097	P	Rock Creek near CR350W	None				
030040	40-03	E	Wabash River at CR200N	<i>E. coli</i> GM	441	100mL	8/4-9/1/98	
050030	41-01	E	Deer Creek at SR29	<i>E. coli</i> GM	399	100mL	8/4-9/1/98	
050060	169-055	P	Little Deer Creek near CR600E	None				
050070	169-048	P	Paint Creek near CR225E	None				
050110	169-007	P	Bridge Creek near SR18	None				
	169-015	P	Deer Creek near CR300N	None				
	41-02	E	Deer Creek at CR300N	<i>E. coli</i> GM	298	100mL	8/4-9/1/98	
	DC-5	F	Deer Creek at CR300N	Lead	19	ug/L	08/17/98	
				Nitrate	12	mg/L	05/11/98	Applies to water intake
070030	WB-316	F	Wabash River at SR225	Cyanide	0.008	mg/L	10/30/96	
				Cyanide	0.0074	mg/L	06/22/98	
				Lead	9	ug/L	03/12/98	
				Lead	13	ug/L	08/13/98	
				Lead	11	ug/L	09/08/98	
				Mercury	0.2	ug/L	05/08/96	
				Mercury	0.2	ug/L	04/14/98	
				Mercury	0.2	ug/L	11/13/98	
	40-04	E	Wabash River at SR225	<i>E. coli</i> GM	848	100mL	8/4-9/1/98	

¹ E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

² Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 6 HUC 05120106 Tippecanoe River Sampling Sites

5120106	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010030	30-01	E	Tippecanoe River at CR1050W	None				
010040	TR-164	F	Tippecanoe River at SR13	Lead	11	ug/L	08/27/98	
				Mercury	0.2	ug/L	05/21/98	
				Mercury	0.2	ug/L	06/15/98	
010070	169-050	P	Grassy Creek near Kyle Rd	None				
020010	30-02	E	Tippecanoe River at Oswego	None				
020030	169-069	P	Deeds Creek near CR300E	None				
020050	169-079	P	Wyland Ditch near Wilcox Rd	None				
030050	30-03	E	Tippecanoe River at CR700W	<i>E. coli</i> GM	311	100mL	8/6-9/3/98	
	TR-139	F	Tippecanoe River at CR700W	Lead	12	ug/L	08/27/98	
040010	169-010	P	Tippecanoe River near East 17th Trail	None				
040040	30-04	E	Tippecanoe River at SR331	<i>E. coli</i> GM	220	100mL	8/6-9/3/98	
040080	169-099	P	Tippecanoe River near SR25	None				
040110	169-032	P	Chipewanuck Creek near CR700E	None				
050030	30-05	E	Tippecanoe River at US31	<i>E. coli</i> GM	458	100mL	8/6-9/3/98	
050040	TR-107	F	Tippecanoe River at US31	Cyanide	0.006	mg/L	06/19/96	
				Cyanide	0.008	mg/L	07/17/96	
				Lead	7.1	ug/L	07/23/97	
				Lead	7.1	ug/L	08/20/97	
	169-020	P	Tippecanoe River near CR375W	None				
050060	169-077	P	Mud Creek near CR400S	None				
050070	169-030	P	Mud Creek near CR 100S	None				
060020	29-01	E	Tippecanoe River at Leiters Ford	<i>E. coli</i> GM	587	100mL	8/5-9/2/98	
060060	29-02	E	Tippecanoe River at CR200E	<i>E. coli</i> GM	372	100mL	8/5-9/2/98	
060090	169-080	P	Tippecanoe River near Haschel DNR ramp	None				
060110	169-100	P	Tippecanoe River near CR50E	None				
070030	169-087	P	Mill Creek near CR350S	None				
080020	28-01	E	Tippecanoe River at SR119	<i>E. coli</i> GM	548	100mL	8/5-9/2/98	
	TR-56	F	Tippecanoe River at SR119	Lead	17	ug/L	08/17/98	
				Mercury	0.2	ug/L	05/13/98	
	169-088	P	Tippecanoe River near SR18	None				
100030	28-02	E	Tippecanoe River at Buffalo	<i>E. coli</i> GM	424	100mL	8/5-9/2/98	

Table 6 cont.

5120106	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
110110	BMC-1	F	Big Monon Ditch at SR16	Cadmium	14	ug/L	05/13/98	
				Lead	18	ug/L	08/17/98	
	27-03	E	Big Monon Ditch at SR16	<i>E. coli</i> GM	666	100mL	8/5-9/2/98	
120030	169-084	P	McKillip Ditch near CR650N	None				
120070	169-005	P	Hoaglund Ditch near CR200N	None				
120110	169-068	P	Honey Creek near Honey Creek Bay	None				
	169-094	P	Honey Creek near Petit Ditch confluence	None				
140020	28-03	E	Tippecanoe River at US24	<i>E. coli</i> GM	276	100mL	8/5-9/2/98	
150030	169-025	P	Big Creek near CR300E	None				
150050	TR-9	F	Tippecanoe River at SR18	Lead	17	ug/L	08/17/98	
				Mercury	0.2	ug/L	08/17/98	
	28-04	E	Tippecanoe River at SR18	None				

1 E- *E. Coli* Sampling Program conducted by USGS

F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

2 Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Table 7 HUC 05120107 Wildcat Creek Sampling Sites

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010010	23-026	T	Grassy Fork at SR26	<i>E. coli</i>	380	100mL	08/20/98	
	23-027	T	Grassy Fork at CR1400E	<i>E. coli</i>	280	100mL	08/20/98	
	23-028	T	Prairie Run at CR1400E	<i>E. coli</i>	250	100mL	08/20/98	
	23-029	T	Grassy Fork at CR1330E	<i>E. coli</i>	320	100mL	08/20/98	
	23-030	T	Grassy Fork at CR1250E	<i>E. coli</i>	400	100mL	08/20/98	
010020	23-023	T	Middle Fork at CR1400E	None				
	23-024	T	Middle Fork at CR1330E	None				
	23-025	T	Middle Fork at CR1250E	None				
010030	23-001	T	Mud Creek at CR350N	<i>E. coli</i>	720	100mL	08/14/98	
	23-002	T	Mud Creek at CR700W	<i>E. coli</i>	560	100mL	08/14/98	
	23-003	T	Mud Creek at CR550W	<i>E. coli</i>	600	100mL	08/14/98	
	23-004	T	Mud Creek at CR300W	<i>E. coli</i>	420	100mL	08/14/98	
010040	23-005	T	North Creek at CR500N	<i>E. coli</i>	11000	100mL	08/14/98	
	23-006	T	Mud Creek at SR19	None				
	23-007	T	Mud Creek at CR600N	<i>E. coli</i>	480	100mL	08/14/98	
	23-008	T	Mud Creek at CR100E	<i>E. coli</i>	5400	100mL	08/14/98	
	169-045	P	Mud Creek at CR900E	None				
	23-009	T	Mud Creek at SR213	<i>E. coli</i>	610	100mL	08/14/98	
010050	169-035	P	Nieman Ditch at CR200N	None				
	23-010	T	Turkey Creek at CR300N	None				
010060	23-011	T	Turkey Creek at CR400N	None				
	23-012	T	Round Prairie Ditch at CR300N	None				
	23-013	T	Round Prairie Ditch at SR213	None				
	23-014	T	Round Prairie Ditch at CR400N	None				
	23-015	T	Turkey Creek at CR500N	<i>E. coli</i>	1400	100mL	08/20/98	
	23-016	T	Turkey Creek at CR600N	<i>E. coli</i>	930	100mL	08/20/98	
010070	23-017	T	Mud Creek at CR500S	<i>E. coli</i>	1800	100mL	08/20/98	
	23-018	T	Irwin Creek at CR650N	<i>E. coli</i>	260	100mL	08/20/98	
	23-019	T	Mud Creek at CR1100E	None				
	23-020	T	Mud Creek at CR300S	None				
	23-031	T	Wildcat Creek at CR300S	None				

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
010080	23-032	T	Wildcat Creek at CR1100E	None				
	23-01	E	Wildcat Creek at CR1100E	<i>E. coli</i> GM	643	100mL	8/5-9/2/98	
	23-033	T	Wildcat Creek at CR1030E	None				
	23-034	T	Wildcat Creek at SR213	None				
	23-035	T	Wildcat Creek at CR50S	None				
010090	23-036	T	Kokomo Reservoir at SR22	None				
	23-036A	T	Kokomo Reservoir at CR600E	None				
	23-036B	T	Kokomo Reservoir at CR500E	None				
	23-037	T	Kokomo Reservoir at CR400E	None				
010100	23-038	T	Wildcat Creek at CR300E	None				
	23-039	T	Wildcat Creek before Stahl Ditch confl	None				
	23-040	T	Unnamed Trib before Prairie Cr Ditch confl	None				
	23-042	T	Prairie Creek Ditch at CR200E	<i>E. coli</i>	600	100mL	8/27/98	
				DO	3.8	mg/L	8/27/98	Low D.O., agricultural area, no reareation
	23-043	T	Prairie Creek Ditch in Delco Park	<i>E. coli</i>	1100	100mL	8/27/98	
	23-044	T	Cannon Goyer Ditch before Wildcat Cr confl	<i>E. coli</i>	380	100mL	8/27/98	
	WC-66	F	Wildcat Creek at US31	Cadmium	3.3	ug/L	5/12/98	Near major highway with abundant traffic
				Cyanide	0.007	mg/L	2/13/96	
				Cyanide	0.007	mg/L	4/11/96	
				Cyanide	0.006	mg/L	6/5/96	
				Cyanide	0.012	mg/L	7/1/96	
				Cyanide	0.006	mg/L	8/29/96	
				Cyanide	0.006	mg/L	10/28/96	
				Cyanide	0.028	mg/L	6/4/97	
				Cyanide	0.031	mg/L	6/4/97	
				Cyanide	0.007	mg/L	7/1/97	
				Cyanide	0.009	mg/L	7/1/97	
				Cyanide	0.006	mg/L	5/12/98	
				Cyanide	0.006	mg/L	6/10/98	
				Lead	9.7	ug/L	2/12/98	
				Lead	12	ug/L	3/17/98	
				Lead	14	ug/L	8/18/98	
				Lead	8.8	ug/L	9/8/98	
				Mercury	0.2	ug/L	4/15/98	

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
cont	WC-66	F	Wildcat Creek at US31	Nitrate	14	mg/L	2/13/96	Applies to water intake
				Nitrate	13	mg/L	3/7/96	Applies to water intake
				Nitrate	12	mg/L	4/11/96	Applies to water intake
				Nitrate	16	mg/L	5/8/96	Applies to water intake
				Nitrate	15	mg/L	6/5/96	Applies to water intake
				Nitrate	12	mg/L	12/4/96	Applies to water intake
				Nitrate	11	mg/L	1/15/97	Applies to water intake
				Nitrate	16	mg/L	6/4/97	Applies to water intake
				Nitrate	12	mg/L	5/12/98	Applies to water intake
	23-045	T	Wildcat Creek at Carter St	<i>E. coli</i>	350	100mL	8/27/98	CSOs along stream reach
	23-046	T	Wildcat Creek at Ohio St	None				
	169-065	P	Wildcat Creek near East Vaile St	None				
	23-048	T	Wildcat Creek at Apperson Way	None				
	23-049	T	Wildcat Creek at Washington St	<i>E. coli</i>	430	100mL	9/2/98	CSOs along stream reach
	23-050	T	Wildcat Creek at McCann St	<i>E. coli</i>	1600	100mL	9/2/98	CSOs along stream reach
	23-051	T	Wildcat Creek at Phillips St	<i>E. coli</i>	2400	100mL	9/2/98	CSOs along stream reach
	23-052	T	Wildcat Creek at Markland Ave	<i>E. coli</i>	2400	100mL	9/2/98	CSOs along stream reach
010110	23-054	T	Kokomo Creek at CR600E	<i>E. coli</i>	980	100mL	9/4/98	
	23-055	T	Kokomo Creek at CR300S	<i>E. coli</i>	260	100mL	9/4/98	
	23-056	T	Kokomo Creek at SR19	DO	3.77	mg/L	9/4/98	Low D.O.
	23-057	T	Kokomo Creek at CR400E	<i>E. coli</i>	310	100mL	9/4/98	
	23-058	T	Kokomo Creek at CR300E	<i>E. coli</i>	700	100mL	9/4/98	
	23-059	T	Kokomo Creek at CR200E	<i>E. coli</i>	950	100mL	9/4/98	
	23-059A	T	Unnamed Trib upstream of Southway Blvd	<i>E. coli</i>	2000	100mL	9/3/98	
010120	23-060	T	Kokomo Creek at Southway Blvd	<i>E. coli</i>	490	100mL	9/4/98	
	23-061	T	Kokomo Creek at US31	None				
	23-062	T	Kokomo Creek at Lafountain St	<i>E. coli</i>	>2000	100mL	9/4/98	CSOs along stream reach
	23-063	T	Kokomo Creek at Highland Park Bridge	<i>E. coli</i>	1000	100mL	9/4/98	CSOs along stream reach
	23-064	T	Kokomo Creek at Park Ave	<i>E. coli</i>	1300	100mL	9/4/98	CSOs along stream reach

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
020010	23-065	T	Wildcat Creek at N&W RR Bridge	<i>E. coli</i>	630	100mL	9/2/98	CSOs and Kokomo STP outfall upstream
	23-066	T	Shambaugh Run at Markland Ave	<i>E. coli</i>	690	100mL	9/2/98	CSO overflow from manhole
	23-067	T	Wildcat Creek at CR200W	<i>E. coli</i>	500	100mL	9/2/98	
	23-068	T	Wildcat Creek at CR300W	None				
	WC-60	F	Wildcat Creek at CR300W	Cyanide	0.006	mg/L	8/29/96	
				Cyanide	0.007	mg/L	10/28/96	
				Cyanide	0.01	mg/L	6/4/97	
				Cyanide	0.006	mg/L	7/1/97	
				Cyanide	0.008	mg/L	9/30/97	
				Cyanide	0.013	mg/L	10/27/97	
				Cyanide	0.016	mg/L	12/2/97	
				Cyanide	0.006	mg/L	1/20/98	
				Cyanide	0.013	mg/L	2/12/98	
				Cyanide	0.006	mg/L	4/15/98	
				Cyanide	0.009	mg/L	5/12/98	
				Lead	7.9	ug/L	7/29/97	
				Lead	17	ug/L	8/18/98	
				Lead	12	ug/L	9/8/98	
				Lead	7.6	ug/L	10/7/98	
				Nitrate	12	mg/L	2/13/96	Applies to water intake
				Nitrate	12	mg/L	3/7/96	Applies to water intake
				Nitrate	14	mg/L	5/8/96	Applies to water intake
				Nitrate	14	mg/L	6/5/96	Applies to water intake
				Nitrate	15	mg/L	6/4/97	Applies to water intake
				Nitrate	11	mg/L	5/12/98	Applies to water intake
	23-068A	T	Wildcat Creek near 1202 Arundel Dr	None				
	23-069	T	Wildcat Creek at CR440W	None				

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
020020	23-070A	T	Unnamed Trib at US31	<i>E. coli</i>	>800	100mL	9/11/98	Exotic animal confined feeding operation
				DO	2.74	mg/L	9/11/98	Low D.O.
				TDS	790	mg/L	9/11/98	Confined feeding and semi-public outfall
	23-070B	T	Unnamed Trib at Micheal Lane	<i>E. coli</i>	300	100mL	9/11/98	
				Chloride	330	mg/L	9/11/98	
				DO	2.45	mg/L	9/11/98	Low D.O.
				TDS	850	mg/L	9/11/98	Applies to industrial intake
	23-070	T	Kelly West Ditch at CR600N	None				
	23-071	T	East Fork Little Wildcat Creek at CR500W	<i>E. coli</i>	670	100mL	9/11/98	
	23-072	T	East Fork Little Wildcat Creek at CR500S	<i>E. coli</i>	720	100mL	9/11/98	
	23-073	T	East Fork Little Wildcat Creek at SR26	<i>E. coli</i>	500	100mL	9/11/98	
	23-073B	T	Indian Hts Lift Station Trib upstream of US31	None				
	23-073A	T	Unnamed Trib at Yale Blvd	None				
	23-074	T	East Fork Little Wildcat Creek at CR300S	<i>E. coli</i>	410	100mL	9/11/98	
	23-075	T	East Fork Little Wildcat Creek at CR200W	<i>E. coli</i>	540	100mL	9/11/98	
	23-076	T	West Fork Little Wildcat Creek at SR26	<i>E. coli</i>	340	100mL	9/11/98	
	23-077	T	West Fork Little Wildcat Creek at CR200W	None				
020030	23-078	T	Little Wildcat Creek at CR250S	None				
	23-079	T	Little Wildcat Creek at CR200S	<i>E. coli</i>	270	100mL	9/11/98	
	23-082	T	William Vogus Ditch at CR600W	None				
	23-082A	T	Lynn Run at CR300S	None				
	23-083	T	Little Wildcat Creek at CR560W	None				
	23-084	T	Little Wildcat Creek at CR80S	None				
020040	23-090	T	West Honey Creek at SR26	<i>E. coli</i>	710	100mL	9/18/98	
	23-091	T	West Honey Creek at CR775W	<i>E. coli</i>	670	100mL	9/18/98	Russiaville STP outfall and cattle access
	23-092	T	West Honey Creek at CR785W	<i>E. coli</i>	520	100mL	9/18/98	
	23-093	T	West Honey Creek at CR250S	<i>E. coli</i>	790	100mL	9/18/98	
	23-094	T	West Honey Creek at CR180S	<i>E. coli</i>	310	100mL	9/18/98	
020050	23-085	T	Wildcat Creek at CR750W	None				
	23-086	T	Honey Creek at CR500S	<i>E. coli</i>	310	100mL	9/18/98	
	23-087	T	Honey Creek at CR680W	<i>E. coli</i>	320	100mL	9/18/98	
	23-088	T	Honey Creek at CR220S	<i>E. coli</i>	590	100mL	9/18/98	
	23-089	T	Honey Creek at CR750W	None				
	23-095	T	Honey Creek at CR100S	<i>E. coli</i>	340	100mL	9/18/98	

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
020060	23-096	T	Wildcat Creek at CR950W	<i>E. coli</i>	240	100mL	9/18/98	
	169-085	P	Unnamed Trib at CR100S	None				
	23-097	T	Wildcat Creek at CR1150W	None				
020070	23-098	T	Petes Run at SR22	<i>E. coli</i>	430	100mL	9/23/98	
	23-099	T	Wildcat Creek at SR22	None				
	23-03	E	Wildcat Creek at SR22	<i>E. coli</i> GM	876	100mL	8/3-8/31/98	
	23-100	T	Wildcat Creek at SR29	None				
020080	23-101	T	Wildcat Creek at CR500E	None				
	23-102	T	Wildcat Creek at CR350E	None				
	169-017	P	Wildcat Creek at CR500S	None				
	23-103	T	Wildcat Creek at CR50E	None				
	23-104	T	Wildcat Creek at SR75	None				
	WC-32	F	Wildcat Creek at SR75	Lead	20	ug/L	8/17/98	
				Nitrate	11	mg/L	3/11/98	Applies to water intake
020090	23-04	E	Wildcat Creek at SR39	<i>E. coli</i> GM	284	100mL	8/3-8/31/98	
	23-105	T	Wildcat Creek at Prince William Rd	None				
	23-105A	T	Unnamed Trib at Prince William Rd	<i>E. coli</i>	320	100mL	9/25/98	
	23-106	T	Wildcat Creek at SR421	None				
020100	23-107	T	Wildcat Creek at CR800W	None				
	23-108	T	Wildcat Creek at Wolfe Rd	None				
	23-109	T	Wildcat Creek at CR200N	<i>E. coli</i>	240	100mL	9/25/98	
	23-110	T	Wildcat Creek before SF Wildcat Creek confl	<i>E. coli</i>	470	100mL	9/25/98	
030010	42-163	T	Middle Fork Wildcat Creek at SR26	None				
	42-164	T	Middle Fork Wildcat Creek at SR29	<i>E. coli</i>	340	100mL	10/22/98	
	42-165	T	Middle Fork Wildcat Creek at CR500E	None				
030020	42-166	T	Middle Fork Wildcat Creek at CR700S	None				
	42-167	T	Middle Fork Wildcat Creek at CR300E	None				
	42-168	T	Middle Fork Wildcat Creek at CR100E	<i>E. coli</i>	3100	100mL	10/22/98	
	42-169	T	Robertson Branch at CR750S	None				

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
030030	42-170	T	Middle Fork Wildcat Creek at CR100W	<i>E. coli</i>	250	100mL	10/22/98	
	42-171	T	Middle Fork Wildcat Cr at Prince William Rd	<i>E. coli</i>	320	100mL	10/22/98	
	42-172	T	Middle Fork Wildcat Creek at CR400W	None				
	42-173	T	Silverthorn Ditch at CR480W	<i>E. coli</i>	1000	100mL	10/22/98	Rossville STP outfall
				Chloride	360	mg/L	10/22/98	
				TDS	1029	mg/L	10/22/98	Applies to industrial intake
	42-174	T	Middle Fork Wildcat Creek at SR39/421	None				
	42-175	T	Middle Fork Wildcat Creek at CR500W	None				
	42-176	T	Middle Fork Wildcat Creek at CR680W	None				
030040	42-177	T	Campbells Run at CR00	None				
	42-178	T	Campbells Run at SR75	None				
	42-179	T	Campbells Run at CR300W	<i>E. coli</i>	1100	100mL	10/22/98	
	169-086	P	Campbells Run at CR300W	None				
	42-180	T	Campbells Run at SR39	None				
030050	42-181	T	Campbells Run at SR26	<i>E. coli</i>	1300	100mL	10/22/98	Downstream of Rossville lift station overflow
				DO	3.33	mg/L	10/22/98	Low D.O.
				DO avg	3.9	mg/L	10/22/98	
	42-182	T	Campbells Run at CR680W	None				
	42-183	T	Cripe Run at SR26	None				
030060	42-184	T	Middle Fork Wildcat Creek at SR26	None				
	WCM-7	F	Middle Fork Wildcat Creek at SR26	Lead	19	ug/L	8/17/98	
				Nitrate	12	mg/L	3/25/98	Applies to water intake
				Nitrate	11	mg/L	5/13/98	Applies to water intake
	42-185	T	Hog Run at CR100S	None				
	42-186	T	Middle Fork Wildcat Creek at CR1050E	<i>E. coli</i>	290	100mL	10/22/98	
030070	42-187	T	Middle Fork Wildcat Creek at CR900E	None				
	42-01	E	Middle Fork Wildcat Creek at CR775E	<i>E. coli</i> GM	262	100mL	8/3-8/31/98	
	42-188	T	Middle Fork Wildcat Creek at SR26	None				
040020	23-113	T	South Fork Wildcat Creek at SR29	Lead	18	ug/L	10/1/98	
	23-114	T	South Fork Wildcat Creek at CR300N	None				
	169-047	P	Unnamed Trib near CR250N	None				
	23-115	T	South Fork Wildcat Creek at CR130E	None				
	23-116	T	South Fork Wildcat Creek at CR00	<i>E. coli</i>	330	100mL	10/1/98	

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
040030	23-117	T	Prairie Creek at Kelly Rd	None				
	23-119	T	Mann Ditch at South Williams Rd	None				
	23-120	T	Prairie Creek at Clay St (south)	None				
	23-121	T	Prairie Creek at Clay St (north)	None				
	23-122	T	Unnamed Trib at Washington Ave	None				
	23-124	T	Prairie Creek at Kyger St	<i>E. coli</i>	260	100mL	10/1/98	
	23-124A	T	Prairie Creek at Unnamed Rd behind STP	None				
	23-125	T	Unnamed Trib at CR100N	None				
	23-126	T	Prairie Creek at CR150N	<i>E. coli</i>	410	100mL	10/1/98	
				TDS	830	mg/L	10/1/98	Applies to industrial intake
040040	23-127	T	South Fork Wildcat Creek at SR75	TDS	800	mg/L	10/1/98	Applies to industrial intake
	23-129	T	Blinn Ditch at Union Rd	None				
	23-130	T	South Fork Wildcat Creek at CR130W	<i>E. coli</i>	250	100mL	10/15/98	
	23-131	T	South Fork Wildcat Creek at CR200N	None				
	WCS-34	F	South Fork Wildcat Creek at SR38-39	Cyanide	0.01	mg/L	6/11/96	Frankfort STP upstream
				Cyanide	0.009	mg/L	12/18/96	
				Cyanide	0.013	mg/L	5/20/97	
				Cyanide	0.009	mg/L	9/4/97	
				Cyanide	0.007	mg/L	5/13/98	
				Cyanide	0.011	mg/L	8/17/98	
				Cyanide	0.024	mg/L	9/9/98	
				Cyanide	0.007	mg/L	10/5/98	
				Cyanide	0.016	mg/L	11/12/98	
				Lead	19	ug/L	8/17/98	
				Nitrate	16	mg/L	6/11/96	Applies to water intake
				Nitrate	12	mg/L	12/18/96	Applies to water intake
				Nitrate	14	mg/L	3/11/98	Applies to water intake
				Nitrate	13	mg/L	5/13/98	Applies to water intake
	23-132	T	South Fork Wildcat Creek at CR300W	<i>E. coli</i>	310	100mL	10/15/98	
	23-133	T	South Fork Wildcat Creek at CR400W	<i>E. coli</i>	240	100mL	10/15/98	
	23-134	T	South Fork Wildcat Creek at CR500W	<i>E. coli</i>	320	100mL	10/15/98	
	23-135	T	South Fork Wildcat Creek at CR600W	None				
	23-06	E	South Fork Wildcat Creek at CR600W	<i>E. coli</i> GM	506	100mL	8/3-8/31/98	
040050	23-137	T	Kilmore Creek at CR1000E	None				

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
040060	23-136	T	Swamp Creek at CR1000E	<i>E. coli</i>	240	100mL	10/1/98	
				DO	3.85	mg/L	10/1/98	Low D.O.
				Lead	9.9	ug/L	10/1/98	
040070	23-138	T	Stump Ditch at CR900E	None				
	23-140	T	Kilmore Creek at SR29	None				
040080	23-142	T	Kilmore Creek at SR75	None				
040090	23-143	T	Kilmore Creek at CR600W	None				
	23-05	E	Kilmore Creek at CR600W	<i>E. coli</i> GM	300	100mL	8/3-8/31/98	
040100	23-145	T	Lick Run at SR28	None				
	23-146	T	Lick Run at Jefferson Rd	<i>E. coli</i>	320	100mL	10/15/98	
	23-147	T	Heavilon Ditch at CR00	<i>E. coli</i>	610	100mL	10/15/98	Town of Jefferson straight pipe discharge
				DO	2.47	mg/L	10/15/98	Low D.O.
	23-147A	T	Heavilon Ditch at CR450W	None				
	23-148	T	Spring Creek at CR600W	None				
	23-149	T	Spring Creek at CR200N	<i>E. coli</i>	260	100mL	10/15/98	
040110	23-150	T	South Fork Wildcat Creek at Jefferson Rd	<i>E. coli</i>	320	100mL	10/15/98	
	23-151	T	South Fork Wildcat Creek at CR850W	None				
	23-152	T	South Fork Wildcat Creek at CR950W	None				
040120	23-154	T	Anderson Ditch at CR1000S	<i>E. coli</i>	330	100mL	10/15/98	
	23-155	T	Lauramie Creek at US52	<i>E. coli</i>	1500	100mL	10/15/98	
	23-156	T	Lauramie Creek at CR900S	<i>E. coli</i>	>2000	100mL	10/15/98	
	23-157	T	Lauramie Creek at CR700S	None				
040130	23-158	T	South Fork Wildcat Creek at CR700S	None				
	23-159	T	South Fork Wildcat Creek at SR38	None				
	169-056	P	South Fork Wildcat Creek near CR5A East	None				
	169-066	P	Unnamed Trib near CR150S	None				
	23-160	T	South Fork Wildcat Creek at SR26	None				
	23-07	E	South Fork Wildcat Creek at SR26	<i>E. coli</i> GM	166	100mL	8/3-8/31/98	
040140	23-162	T	South Fork Wildcat Creek at CR100N	None				

Table 7 cont.

5120107	SITE	PGM ¹	LOCATION	VIOLATIONS ²	CONC.	UNIT	DATE	COMMENTS
050010	23-111	T	Wildcat Creek at CR2A East	<i>E. coli</i>	300	100mL	9/25/98	
	23-08	E	Wildcat Creek at CR2A East	<i>E. coli</i> GM	191	100mL	8/4-8/31/98	
	23-112	T	Wildcat Creek at SR25	Lead	22	ug/L	9/25/98	
	WC-3	F	Wildcat Creek at SR25	Cyanide	0.006	mg/L	12/17/96	
				Lead	16	ug/L	8/13/98	
				Mercury	0.2	ug/L	8/13/98	

1 E- *E. Coli* Sampling Program conducted by USGS

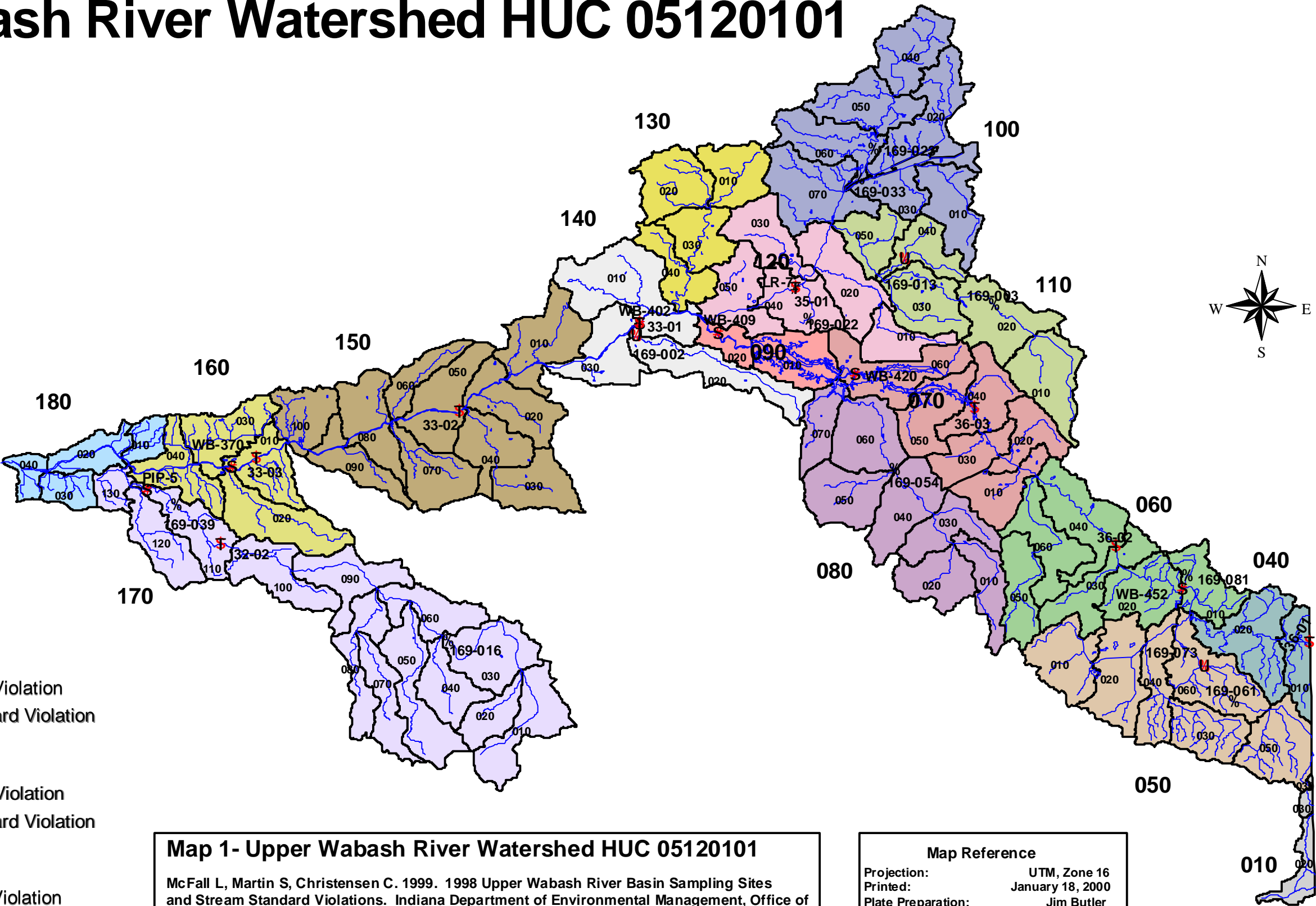
F- Fixed Station Sampling Program (1996, 1997, 1998 data)

P- Probabilistic Sampling Program

T- Total Maximum Daily Load Sampling of Wildcat Creek

2 Exceedance of the *E. Coli* Geometric Mean standard is based on a 30 day, 5 sample series.

Upper Wabash River Watershed HUC 05120101



LEGEND

Sampling Program

Fixed Station

S Stream Standard Violation

No Stream Standard Violation

E.coli

\$ Stream Standard Violation

\$ No Stream Standard Violation

Probabilistic

U Stream Standard Violation

% No Stream Standard Violation

Map 1- Upper Wabash River Watershed HUC 05120101

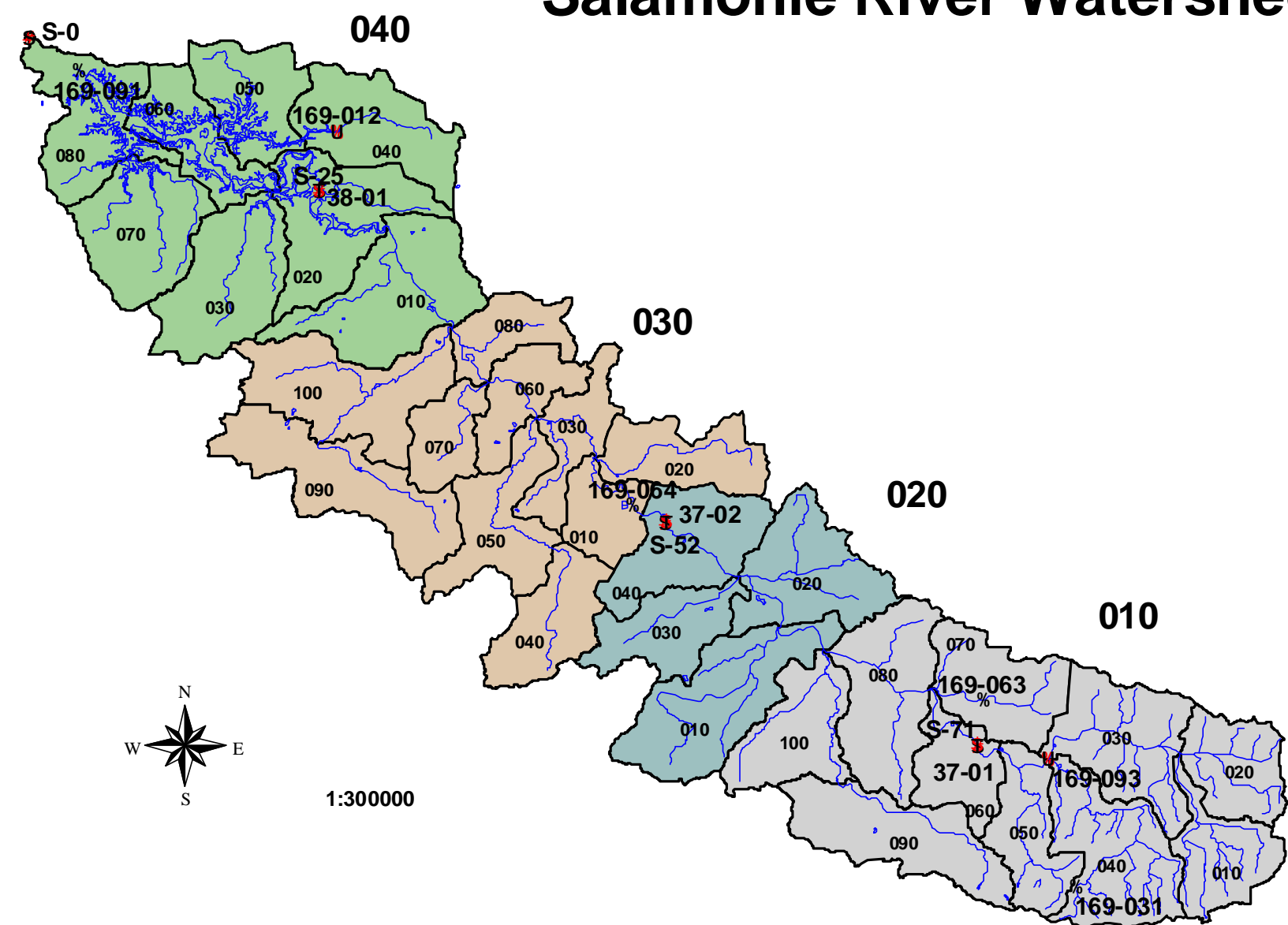
McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Salamonie River Watershed HUC 05120102



1:300000

Map 2- Salamonie River Watershed HUC 05120102
McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- \$** Stream Standard Violation
- \$** No Stream Standard Violation

Probabilistic

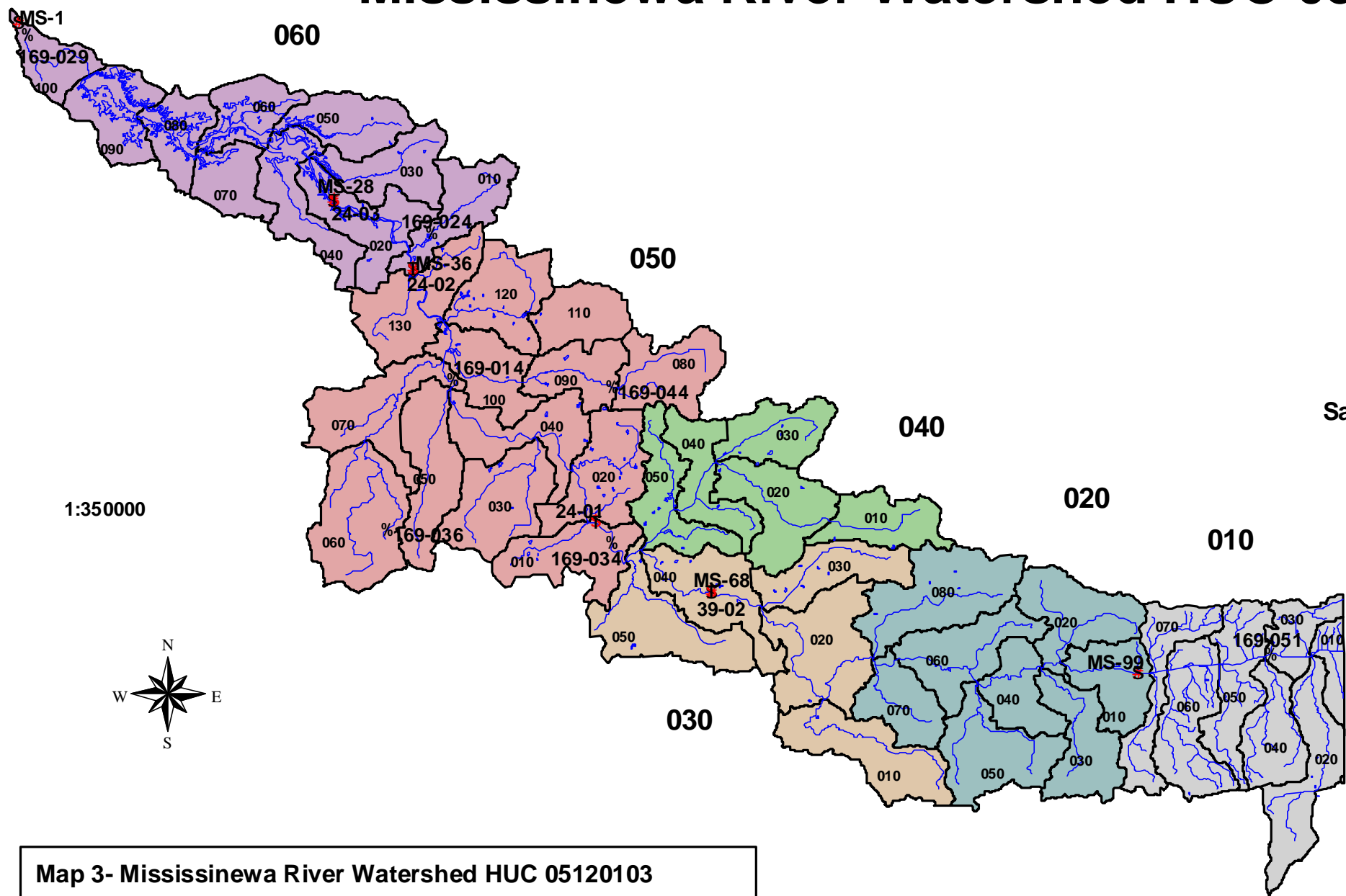
- U** Stream Standard Violation
- %** No Stream Standard Violation

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Mississinewa River Watershed HUC 05120103



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- \$** Stream Standard Violation
- \$** No Stream Standard Violation

Probabilistic

- V** Stream Standard Violation
- %** No Stream Standard Violation

Map 3- Mississinewa River Watershed HUC 05120103

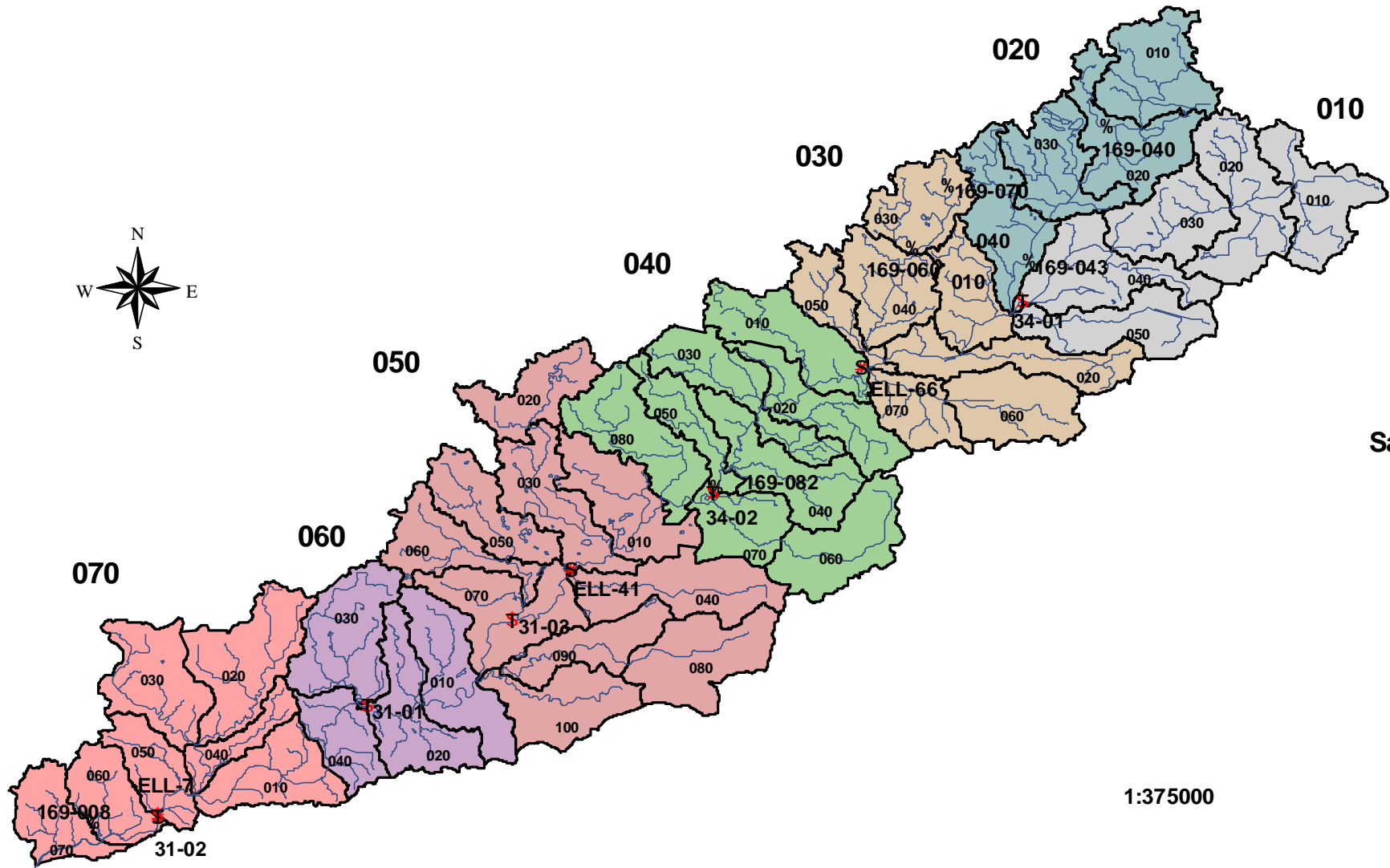
McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Eel River Watershed HUC 05120104



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- \$** Stream Standard Violation
- \$** No Stream Standard Violation

Probabilistic

- V** Stream Standard Violation
- %** No Stream Standard Violation

Map 4- Eel River Watershed HUC 05120104

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

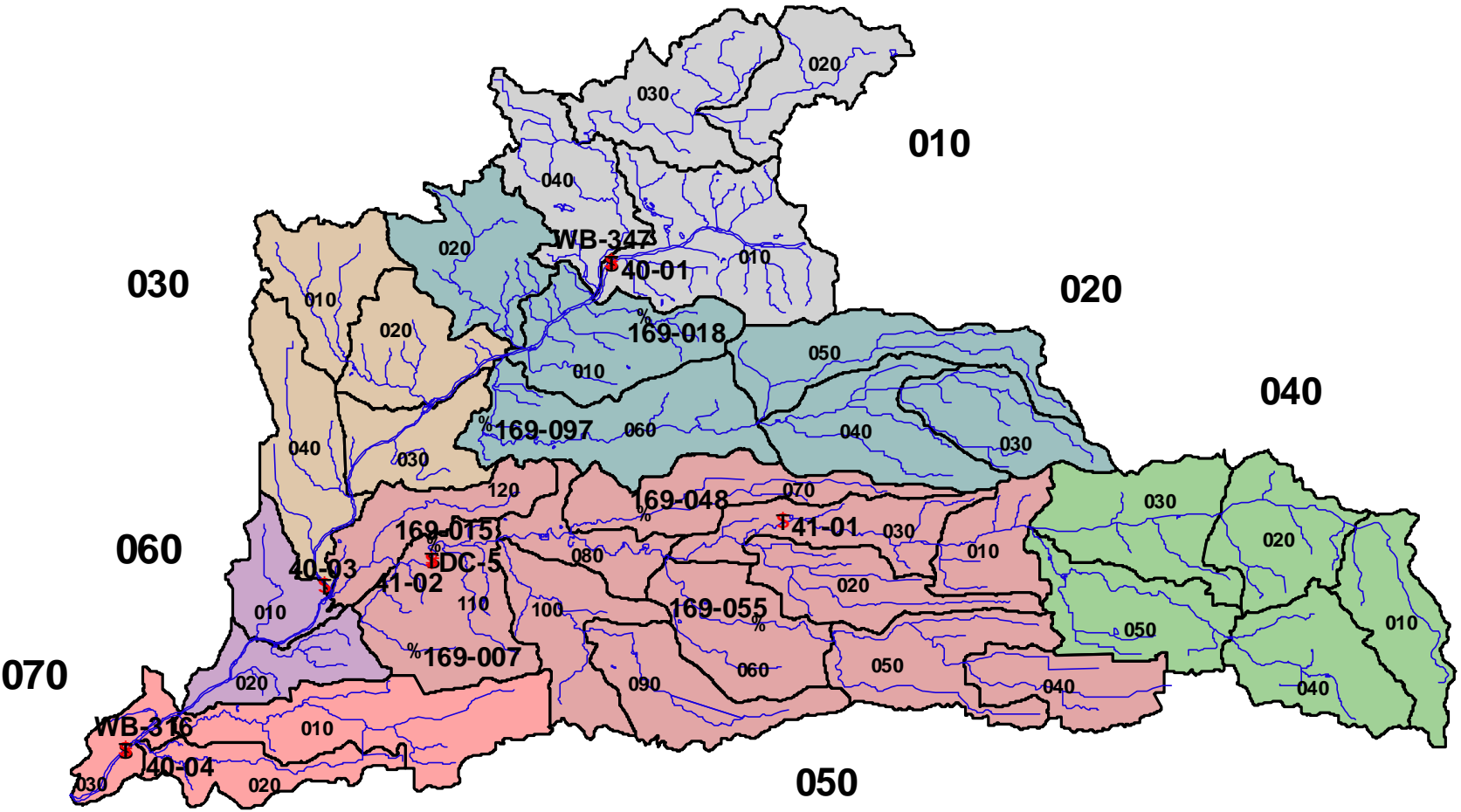
6 0 6 12 Miles

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Middle Wabash/Deer Creek Watershed HUC 05120105



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- \$** Stream Standard Violation
- \$** No Stream Standard Violation

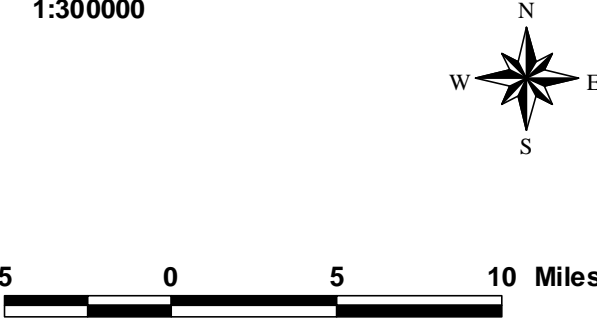
Probabilistic

- V** Stream Standard Violation
- %** No Stream Standard Violation

Map 5- Middle Wabash/Deer Creek Watershed HUC 05120105

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

1:300000

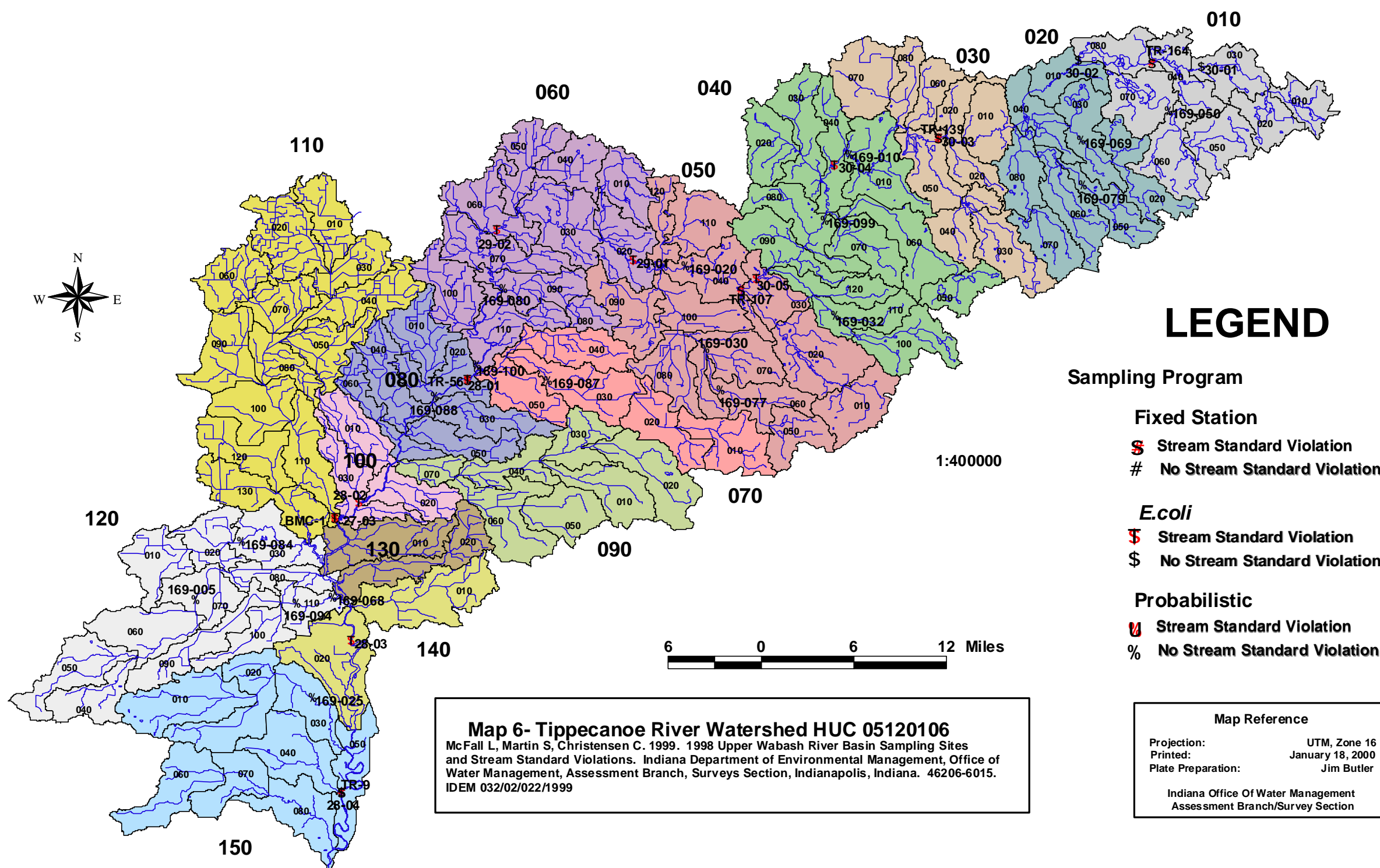


Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Tippecanoe River Watershed HUC 05120106



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- \$** Stream Standard Violation
- \$** No Stream Standard Violation

Probabilistic

- V** Stream Standard Violation
- %** No Stream Standard Violation

Map 6- Tippecanoe River Watershed HUC 05120106

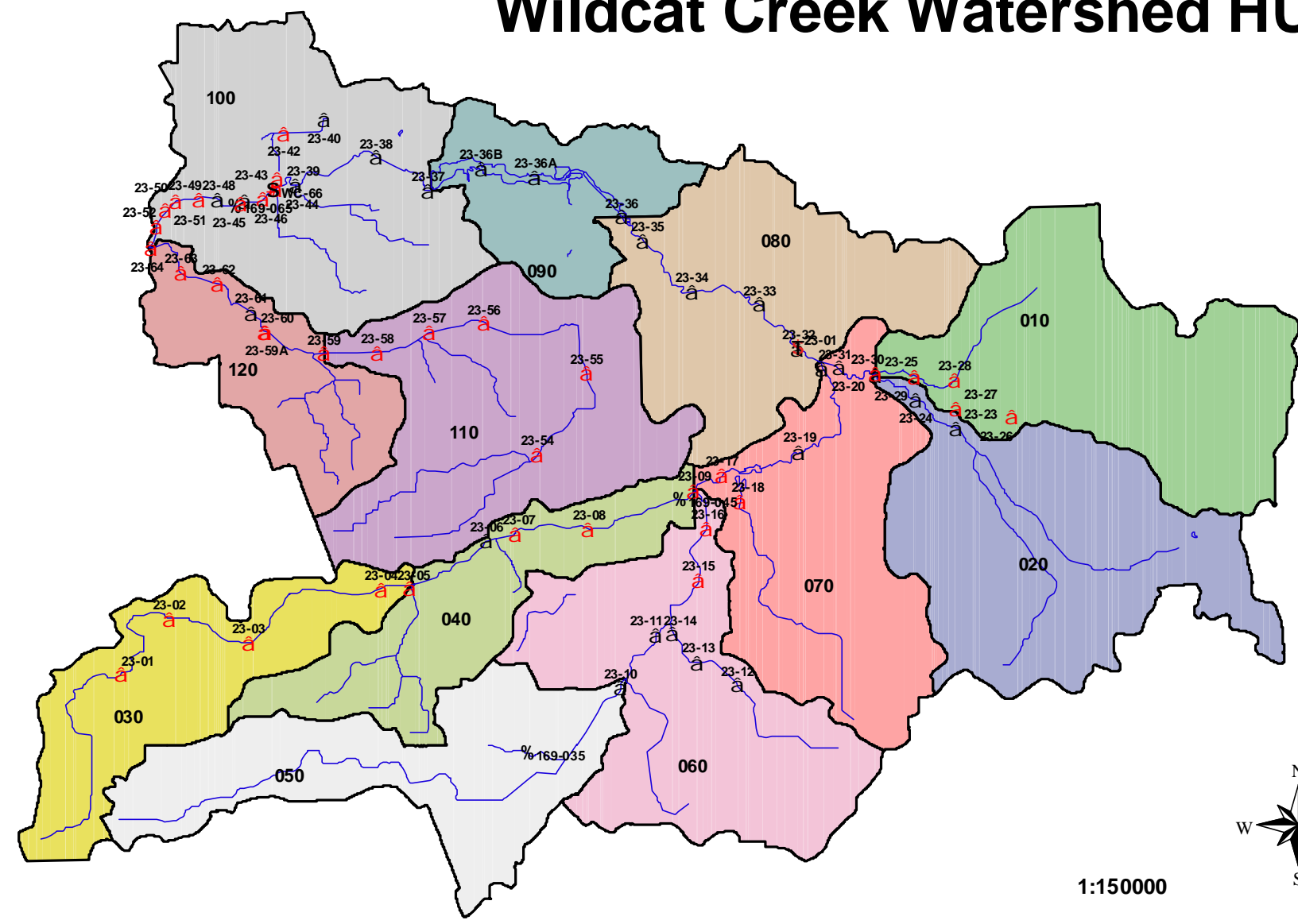
McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Wildcat Creek Watershed HUC 05120107010

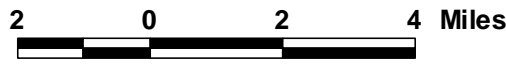


LEGEND

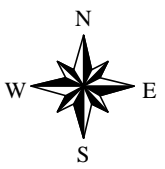
- Sampling Program**
- Fixed Station**
- Stream Standard Violation
 - No Stream Standard Violation
- E.coli**
- Stream Standard Violation
 - No Stream Standard Violation
- Probabilistic**
- Stream Standard Violation
 - No Stream Standard Violation
- TMDL**
- Stream Standard Violation
 - No Stream Standard Violation

Map 7- Wildcat Creek Watershed HUC 05120107010

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999



1:150000



Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Wildcat Creek Watershed HUC 05120107020

LEGEND

Sampling Program

Fixed Station

- Stream Standard Violation
- No Stream Standard Violation

E. coli

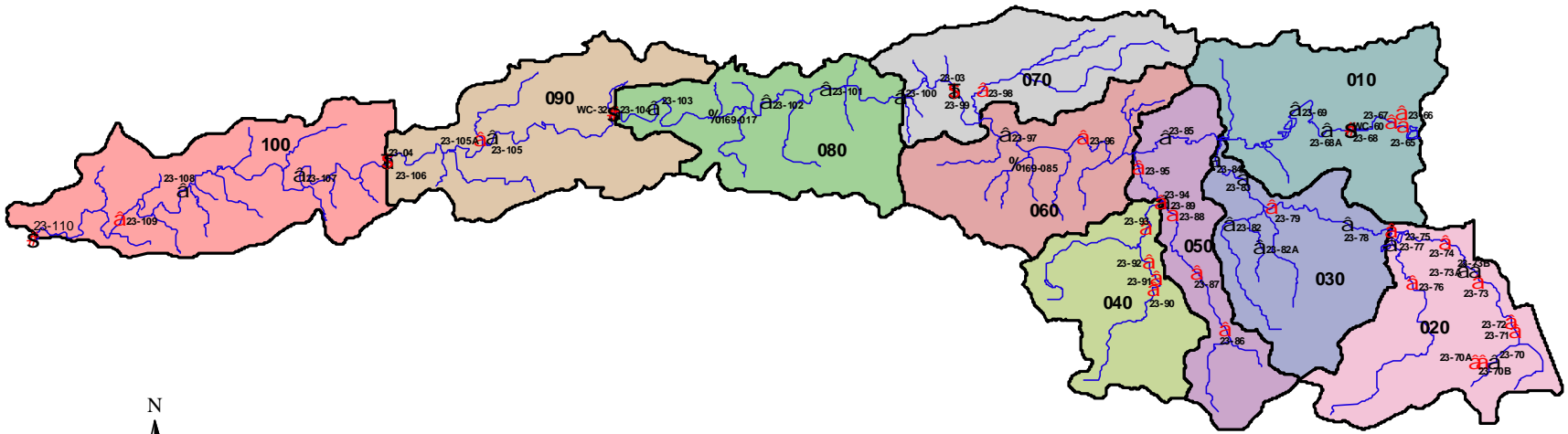
- Stream Standard Violation
- No Stream Standard Violation

Probabilistic

- Stream Standard Violation
- No Stream Standard Violation

TMDL

- Stream Standard Violation
- No Stream Standard Violation



1:225000

Map 8- Wildcat Creek Watershed HUC 05120107020

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

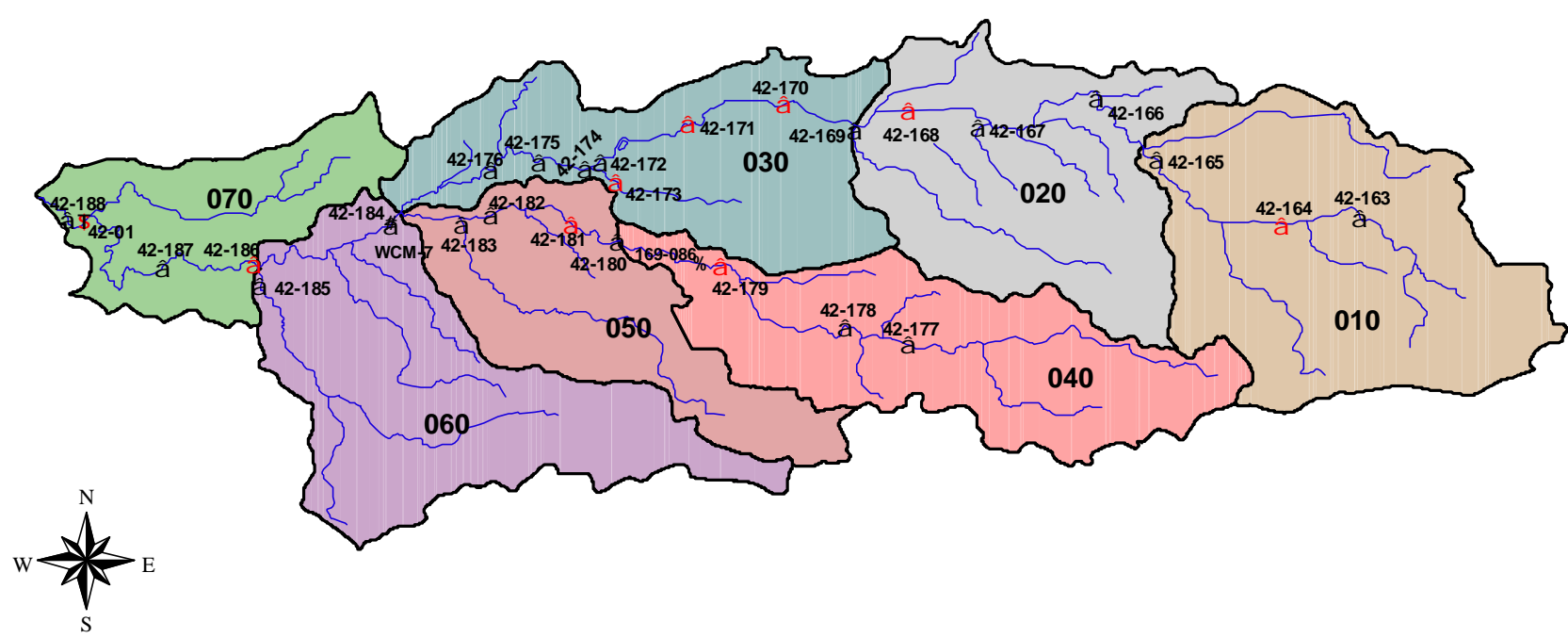


Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Wildcat Creek Watershed HUC 05120107030



LEGEND

Sampling Program

Fixed Station

- Stream Standard Violation
- No Stream Standard Violation

E.coli

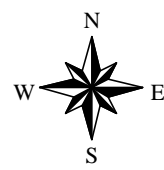
- Stream Standard Violation
- No Stream Standard Violation

Probabilistic

- Stream Standard Violation
- No Stream Standard Violation

TMDL

- Stream Standard Violation
- No Stream Standard Violation



1:150000

Map 9- Wildcat Creek Watershed HUC 05120107030

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

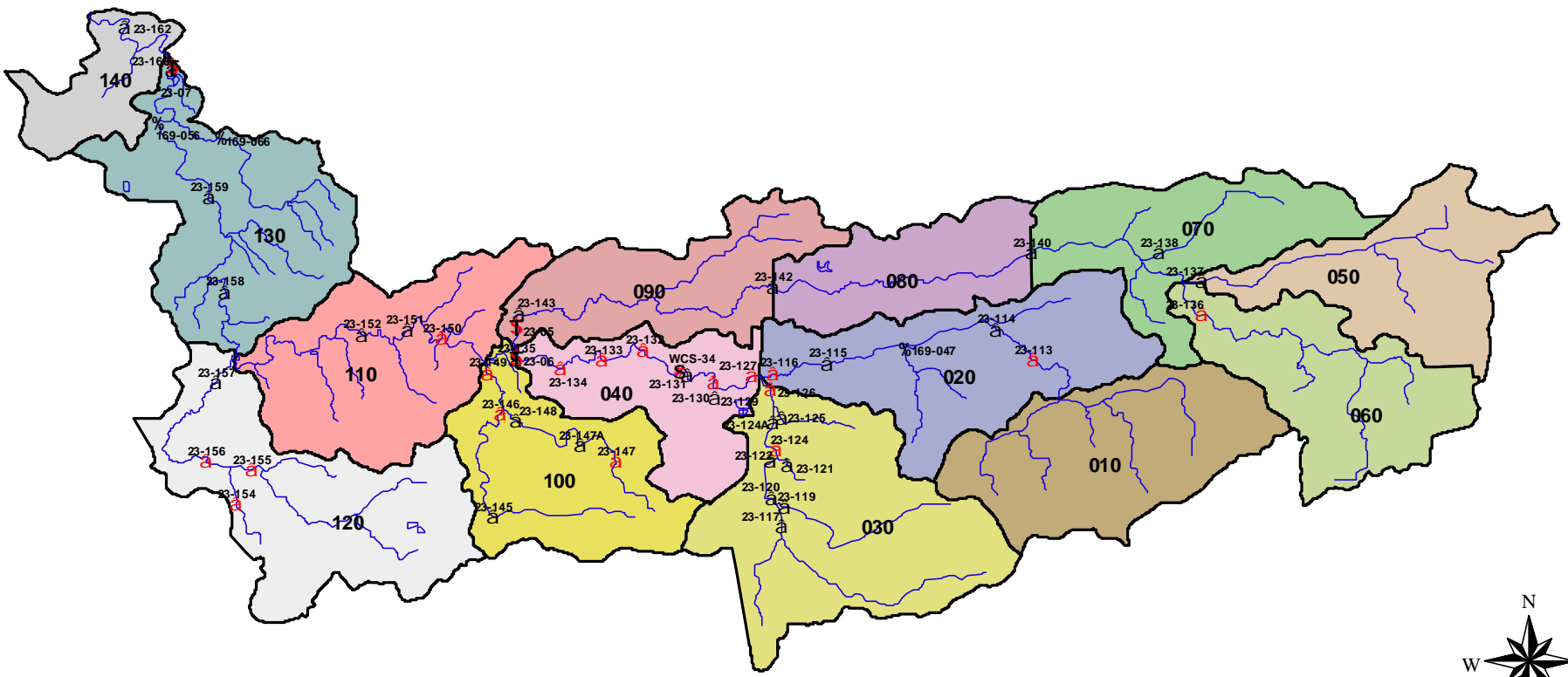


Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Wildcat Creek Watershed HUC 05120107040



LEGEND

Sampling Program

Fixed Station

- S** Stream Standard Violation
- #** No Stream Standard Violation

E.coli

- U** Stream Standard Violation
- %** No Stream Standard Violation

Probabilistic

- U** Stream Standard Violation
- %** No Stream Standard Violation

TMDL

- a** Stream Standard Violation
- a** No Stream Standard Violation

Map 10- Wildcat Creek Watershed HUC 05120107040

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

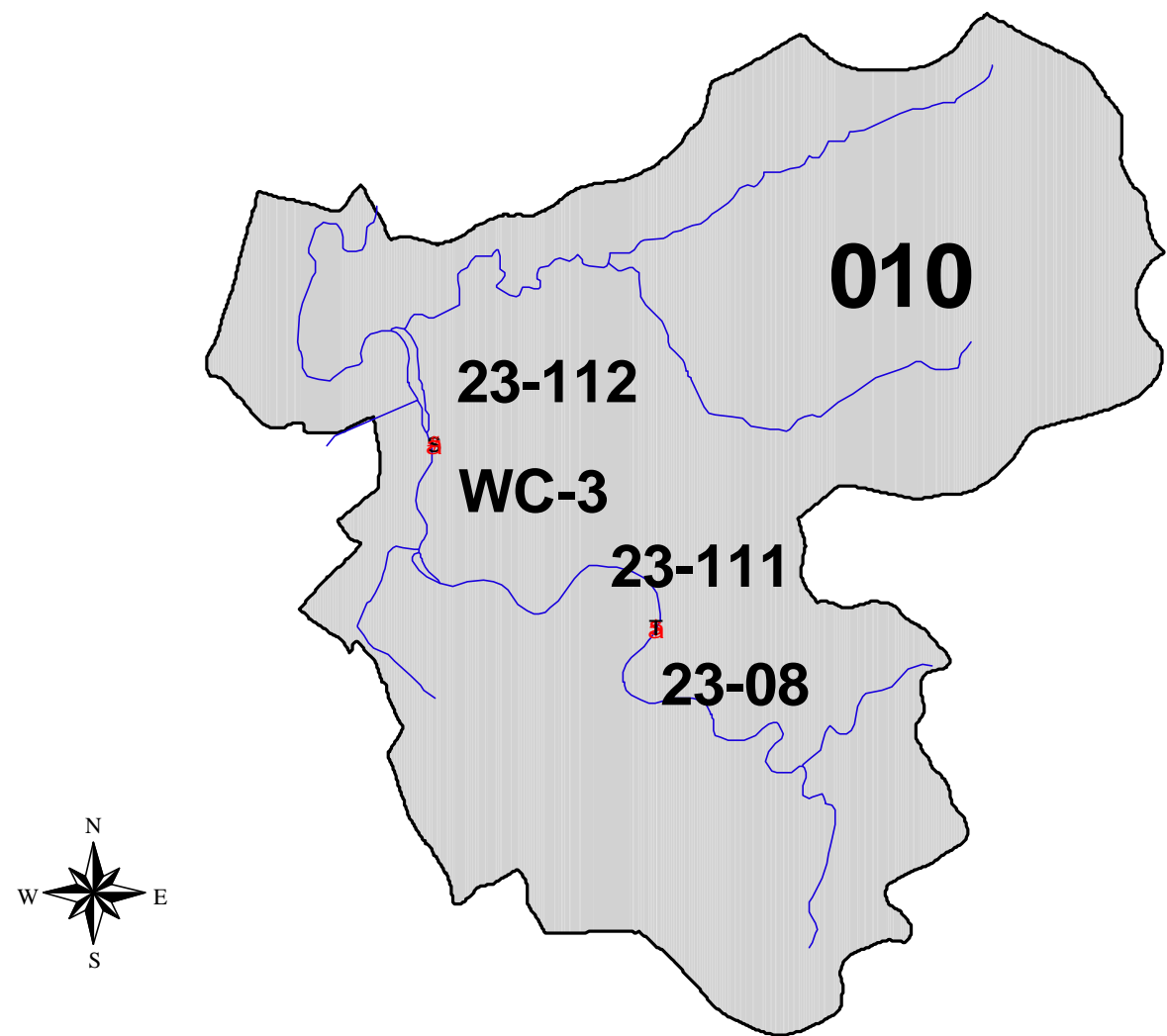
3 0 3 6 Miles

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section

Wildcat Creek Watershed HUC 05120107050



LEGEND

Sampling Program

Fixed Station

- Stream Standard Violation
- No Stream Standard Violation

E.coli

- Stream Standard Violation
- No Stream Standard Violation

Probabilistic

- Stream Standard Violation
- No Stream Standard Violation

TMDL

- Stream Standard Violation
- No Stream Standard Violation

Map 11- Wildcat Creek Watershed HUC 05120107050

McFall L, Martin S, Christensen C. 1999. 1998 Upper Wabash River Basin Sampling Sites and Stream Standard Violations. Indiana Department of Environmental Management, Office of Water Management, Assessment Branch, Surveys Section, Indianapolis, Indiana. 46206-6015. IDEM 032/02/022/1999

0.8 0 0.8 1.6 Miles

Map Reference

Projection: UTM, Zone 16
Printed: January 18, 2000
Plate Preparation: Jim Butler

Indiana Office Of Water Management
Assessment Branch/Survey Section